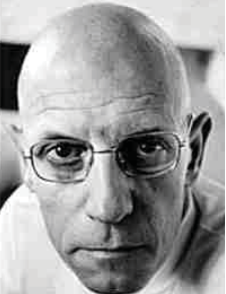


THEORY

Structuralist Theory outside of Architecture

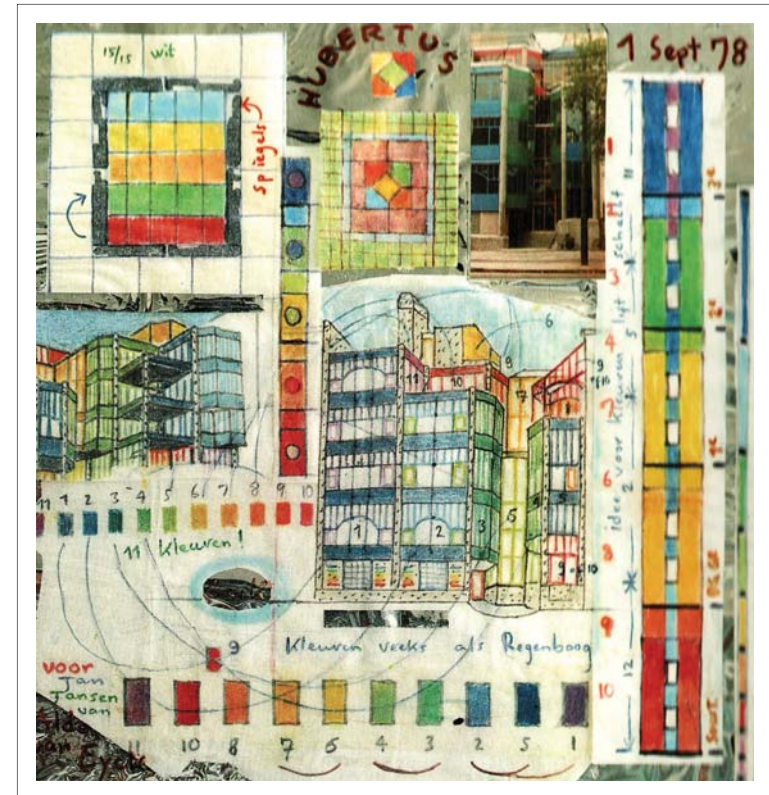


During the Twentieth Century Structuralism permeated the study of sociology, anthropology, psychology, psychoanalysis, literary theory and architecture. Despite using the same name, each movement varied significantly according to the field in question. The study of Structuralism within the social sciences was pioneered by Claude Lévi-Strauss with his 1949 publication *Les Structures élémentaires de la parenté*. Other theorist who featured heavily in Structuralist thinking included Althusser, Foucault, Lacan, Barthes and Derrida.

"...structuralism is fundamentally a way of thinking about the world which is predominately concerned with the perception and description of stuctures," Hawkes 2003, p. 6

"This new concept, that the world is made up of relationships rather than things, constitutes the first principle of the way of thinking which can properly be called 'structuralist'...it claims that the nature of every element in any given structure has no significance by itself, and in fact is determined by its relationship to all the other elements involved in that situation. In short, the full significance of any entity or experience cannot be perceived unless and until it is integrated into the structure of which it forms a part." Hawkes 2003, p. 7

"In consequence, the true nature of things may be said to lie not in things themselves but in the relationships which we construct, and then perceive, between them." Hawkes 2003, p. 7



on STRUCTURALISM

CHAPTER THREE

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STRUCTURALISM

the student's opinion

Structuralism is an architectural movement which has been somewhat lost in architectural history and frequently in architectural education. Structuralism, which can be defined as the representation of social structures in architectural structure, is inherent to architectural design, as the housing of people and their various activities is (or at least should be) central to every design. One may also argue that conventional building typologies have been formed by the interaction of humans and built form, placing further value on Structuralist thought. Consequently it is difficult to understand how a theory which champions the development of form based on social interaction can be so neglected.

I would argue that it is not only because architecture has developed new, and possibly more exciting theories to test, but also because there are very few examples of famous structuralist buildings on which to base an opinion or to act as precedent. Indeed in Australia (particularly Sydney) it is very difficult to find any examples of pure structuralism in architecture, as most Australian buildings of the era generally fall under the modernist definition or exhibit a distinct Brutalist appearance.

I admit that intuitively I am very sceptical of structuralism and the idea that one can influence social behaviour based on building design. I would like to think that it is possible, though. This is the aim of this chapter, to bring structuralism back into the conscious thought of architecture students and show the relevance of Structuralism within the design of affordable housing.

HISTORY

What is Structuralism?

Structuralism was an architecture movement born of Modernism, which experienced its greatest popularity between 1950 and 1980.

"Just as there seemed to be deep structures shaping the social patterns of these cultures there seemed to be 'deep structures' defining the organisation of their traditional built environment. This realisation made a deep impact on important European and north American, architects of the time and one or two of them at least began to speculate on the possible existence of deep structures linking late twentieth century western society and its built environment with those of 'traditional' African and Asian cultures.

This interest in deep structures manifested itself in architecture in two main ways. Firstly, the observation of deep structures in language led to the establishment of a methodology for studying them. This new science of semiology, later known as semiotics, was first proposed by De Saussure early in the twentieth century. By the 1960's the speculation that there might also exist a corresponding language of architecture, the structure of which might be uncovered and analysed, led to a semiotic analysis of the built environment."

"The more obvious result of structuralism in architecture came from the interest of a number of architects who simply grafted onto the traditional architectural project a set of formal gestures which simply symbolised the broader shift in thought in western society which structuralism represented. In the broadest formal sense, the upshot of this was architecture organised as more or less flexible arrangements of interchangeable but generally clearly defined modules. Space was categorised and divided according to use patterns and combined according to devised sets of rules. The component of architectural form were generally clearly articulated - one could always tell, for example, where column became beam and load bearing became non-load bearing."

"In Australia generally and Melbourne specifically, the most progressive architecture seemed to mirror the structuralist shift although as far as I know it was never discussed in those terms at the time. The re-awakening of interest in monumentality also propelled architecture towards closed forms and the expression of mass and solidity. The social program explicit in the work of some of the TEAM X structuralist architects was most clearly exemplified by Kevin Borland in the 1960's although formally his work was not easily linked with the European and North American structuralists." (<http://users.tce.rmit.edu.au/E03159/ModMelb/mm2/lect/struct.html>)

HISTORY

Structuralist Members of Team 10

Aldo van Eyke

Van Eyck was a central member of Team 10 and also a crucial character in the history of Structuralism. Born in The Netherlands, Van Eyck studies fine arts in The Hague followed by Architecture in Zurich. He was fascinated by the architecture of foreign cultures and, in this way, was a key player in the development of the Dutch understanding of Structuralism, with Pete Blom and Hertzberger as his main collaborators. One of Van Eyck's life-long investigations was in the *Architecture of the Child* (designing over 700 playgrounds) which influenced his most famous work (an emblem of Structuralist design) *The Amsterdam Municipal Orphanage* (1955-1960). This revolutionary piece of Architecture continued to influence the design of architecture for children, namely schools and hospitals, for several decades. (<http://team10online.org/team10/eyck/index.html>)



HISTORY

CIAM



The International Congress of Modern Architecture (CIAM) was founded at the Chateau of La Sarraz, Switzerland, in June 1928. The meeting was organized in Paris by Le Corbusier and Gabriel Guevrekian, and in Zurich by members of the Swiss Werkbund and by the art historian, Sigfried Giedion. From the beginning, CIAM was conceived of as an instrument for propaganda to advance the cause of the new architecture that was developing in Europe in the 1920s (modernism). The Congress was attended by twenty-four architects from eight European countries, who signed a joint declaration during the event.

The organization was hugely influential. It was not only engaged in formalizing the architectural principles of the Modern Movement, but also saw architecture as an economic and political tool that could be used to improve the world through the design of buildings and through urban planning.

Here the group discussion concentrated on principle of "The Functional City", which broadened CIAM's scope from architecture into urban planning. Based on an analysis of thirty-three cities, CIAM proposed that the social problems faced by cities could be resolved by strict functional segregation, and the distribution of the population into tall apartment at widely spaced intervals.

CIAM's initial direction was shaped by the interaction of Le Corbusier and other, mostly French-speaking, proponents of a new architecture with the mostly German-speaking representatives of a leftist and technocratic approach to architecture and social organization. In the changed social and political conditions in Europe after First World War, the limited pre-war efforts to make a more socially responsive architecture took a new and decisive turn.

The goals of CIAM after First World War were:

- a) To formulate the contemporary program of architecture
- b) To advocate the idea of modern architecture
- c) To forcefully introduce this idea into technical, economic and social circles.
- d) To see to the resolution of architectural problems

As CIAM members traveled worldwide after the war, many of its ideas spread outside Europe, notably to the USA. The city planning ideas were in the rebuilding of Europe following World War II, although, by then some members had their doubts. Alison and Peter Smithson were chief among the dissenters. When implemented in the postwar period, many of these ideas were compromised by tight financial constraints, poor understanding of the concepts, or popular resistance.

The CIAM organization disbanded in 1959 as the views of members diverged. Le Corbusier had left in 1955, objecting to the increasing use of English during meetings.

As a reform of the CIAM, the group Team 10 was active from 1953 onwards, and two primary movements emerged from it: the New Brutalism of the English members (Alison and Peter Smithson) and the Structuralism of the Dutch members (Aldo van Eyck and Jacob Bakema).

HISTORY TEAM 10

Team 10 was a collaboration between the second generation of modernist architects born from the International Congress of Modern Architecture as an initiative begun by Walter Gropius (a founding member of the CIAM) to refresh the CIAM. Whilst the membership of Team 10 fluctuated throughout its thirty-year history, the main participants can be considered: Jaap Bakema, Georges Candilis, Giancarlo De Carlo, Aldo van Eyck, Alison and Peter Smithson and Shadrach Woods.

"CIAM 8 decided to establish Junior Groups in as many countries as possible to get an effective continuity in the work of CIAM. These groups shall be formed by students and graduate architects who have been working for not more than two years."

"According to legend, the younger generation forced a breach with what had become the established organisation for modern architects."

"While the intention of the Team X generation was to >humanise< technology, the actual architectural results were open to the criticism that they were too abstract - that to the man in the street, the manipulations of structure and plan were simply a more complex version of a basically alienating modern way of building."

Structuralism formed one of the dissent theories of Team 10 who had become disenchanted by the modernist ambitions of their predecessors. From the beginning Team 10 had been heavily influenced by the social sciences and took inspiration from the pioneer of Structuralism in Anthropology, Claude Lévi-Strauss and his publication *Les Structures élémentaires de la parenté* (1949).

"If any 'movement' - if we may call Team 10 a movement for the sake of argument - sought to think through the 'relational city', it was surely Team 10."

"a wilful shift away from objects and towards the relationships between them, a shift away from objects and towards the relationships between them,"

"The notion of activities of relation has shown, once and for all that the urban fabric, like the rural fabric and human fabric, is made up of cells which cannot live separately."

"It testifies to a somewhat foolish hope to which architects could and sometimes did have recourse: the hope of unifying the human sciences,"

"I am the first to confirm how important Team 10 has been, for me as well as for architecture in general. I must say that in the end it finished as a club of old sirs, gossiping and complaining about the world that didn't work in the way they had in mind." - Herman Hertzberger



CASE STUDY

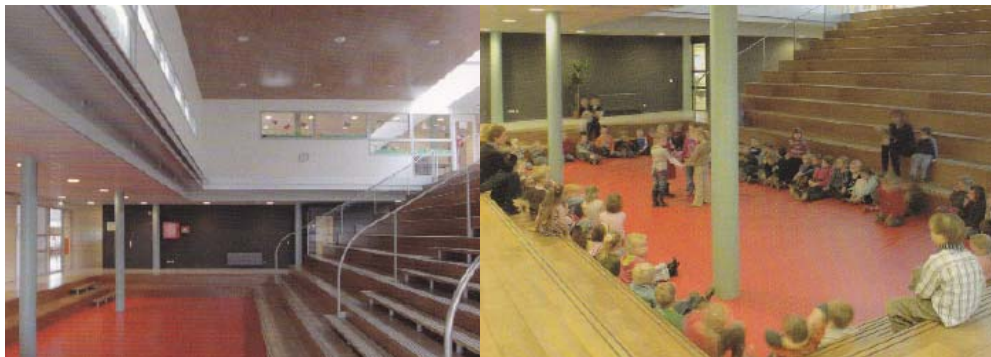
Extended School, Arnhem Herman Hertzberger

LOCATION: Arnhem, 2004-2007

FUNCTION: 2 primary schools,
pre-school, play group, childcare,
double gym



Lifting the building above the ground plane has produced a large covered common space. The use of low shrubs along the playground boundary creates a sense of enclosure.



Staircases are transit routes where students can sit, removing the formality of the traditional classroom configuration.

Hertzberger always focuses on creating "safe" spaces where children can be alone without being forced to move outside the community area. These spaces exist between classrooms, corridors and the hall. Little recesses without an obvious purpose allow children to do their homework or work on a project in small groups. They are not in the classroom, but are still part of the class. Meanwhile, inside the classroom children have their own desk and their own corner giving them the opportunity to create a safe space for themselves and to form a sense of ownership with the space.

Herman Hertzberger

Born in Amsterdam in 1932, Hertzberger completed his Architectural studies at the Delft University of Technology.

Soon after graduating Hertzberger was introduced to Team 10 by van Eyck, attending the Berlin meeting in 1965, the Urbino meeting in 1966 and the meeting in Rotterdam in 1974. Although his experiences of Team 10 were to prove crucial to his architectural development, Hertzberger did not remain an active participant within Team 10.



"I am the first to confirm how important Team 10 has been, for me as well as for architecture in general."

Hertzberger went on to become the most famous Structuralist architect, honing his Structuralist theory in the design of schools in particular.

"Architects should conceive of buildings as instruments played by people."

"You are not supposed to say it, but in architecture Team 10 and CIAM as well are the equivalent of socialism."

Ralph Erskine

Erskine was born in London and graduated from Regent Street Polytechnic, under the direction of Thornton White. He was influenced by Gordon Cullen who would become a well-known architecture illustrator, urban design and theorist. During his career Erskine designed "a large number of houses, schools, apartment buildings and urban plans", many with Structuralist direction. His ideas insisted that the context and landscaping of his buildings be carefully integrated. His most famous work was his 1969 Byker housing scheme design near Newcastle upon Tyne. In his designs he experimented with "user participation and environmental capability", fundamentally Structuralist ideals which he contributed to Team 10.

CASE STUDY

Multifunction Centre, Herman Hertzberger

LOCATION: Arnhem, 2005-2009

FUNCTION: 2 primary schools, pre-school play group, childcare, neighbourhood centre, youth centre, gym, library, police station, social welfare service

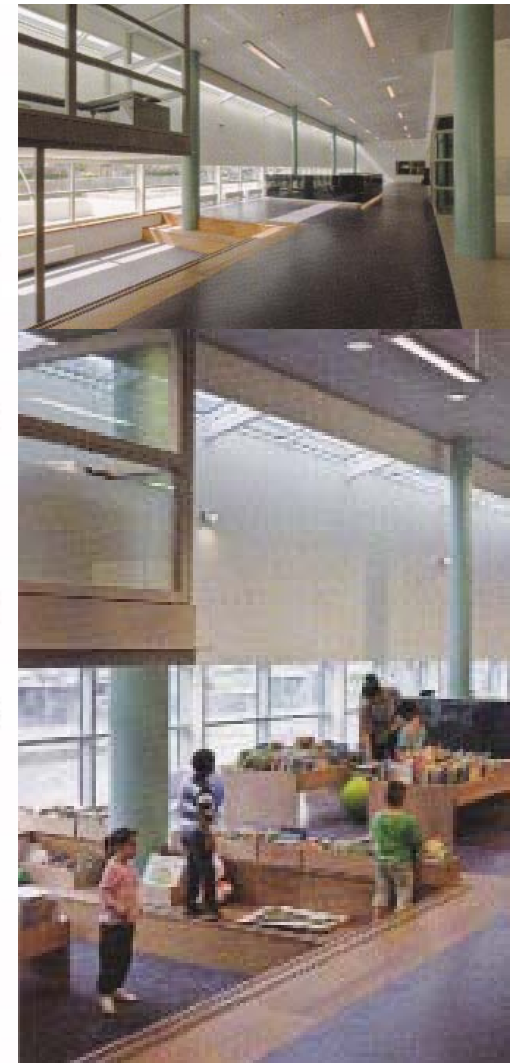


All sections can be accessed from the central hall, it can nonetheless accommodate a large number of people, and is regarded as a spatial prototype for a cluster of autonomous functions of their kinds, all accessed from this central hall and from all directions.

The entire surface area of both schools can be use for education, while the classrooms can be opened up completely to become part of the "learning landscape". By arranging the space in this manner, the spaces can be fully utilized for the various functions of the centre. The grouping or sharing of spaces is supported by this layout.



All spatial arrangement in the building are flexible, each part of it can perform a separate function.



By sharing spatial area between different groups in one building spaces can be fully utilized and the need to duplicate spaces (i.e. multiple of the same classroom) is reduced. At the same time, though, the spacial arrangement is still very clear.

CASE STUDY

Hubertus House, Aldo van Eyck

LOCATION: Amsterdam, 1973-81

FUNCTION: Women and Children Shelter

Hubertus House, a hostel for single parents (primarily mothers) and children was designed by van Eyck in the early 1970s through the conversion of two existing 19th Century buildings and the construction of a new central building.

Eyck, a prominent member of Team 10, places a great emphasis on gathering spaces. Almost half of the central building is dedicated to staircases bridging the existing buildings. This bridge configuration of the central building gives the entire structure a very transparent appearance allowing physical and visual access to the gardens behind the building. "A kind of openness in which enclosure is, as it were, innate." The prevalence of community spaces on the interior and the exterior of the building are typical of Structuralist thought.

Hubertus House is one of van Eyck's most famous built works, not only for its flamboyant colour scheme and its embodiment of structuralism, but also because of its facilitation of *the architecture of the child*, one of van Eyck's pet architectural theories. This is reflected in the open spaces, the location of the children's bedrooms over-looking the garden and in the child-like colour scheme.

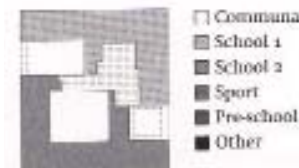
"His intention was to reduce the contrast between the street and the inner courtyard, so that the young children quartered around the quiet courtyard might feel a link with the outside world." (Risselada, M. & Van den Heuvel, D. 2005, pp. 232 - 235)



First floor / Eerste verdieping



Ground floor / Begane grond



Locations different participants

"Avoid using material facades or floors no precious metals, certainly no gold colour anywhere and preferably no copper hues, nothing that could denote luxury or class-related ostentation." Hertzberger



The building disrupts hierarchical relations - which necessarily imply that those higher up must always be able to see those below them, but subordinates can only see their superior when it pleases the latter to appear and show themselves, at which times the inferior are obliged to look up to their better.

Hertzberger's design is fulfilling the rational and functionalism which all the areas within building should fully utilized by different parties within it. The relationship between public and private space as a spatial and relational given at the same time. These spatial and relational aspects are inextricably interlinked.

CASE STUDY

Brittgarde, Tibro,
Ralph Erskine

LOCATION: Tibro, 1959-1969

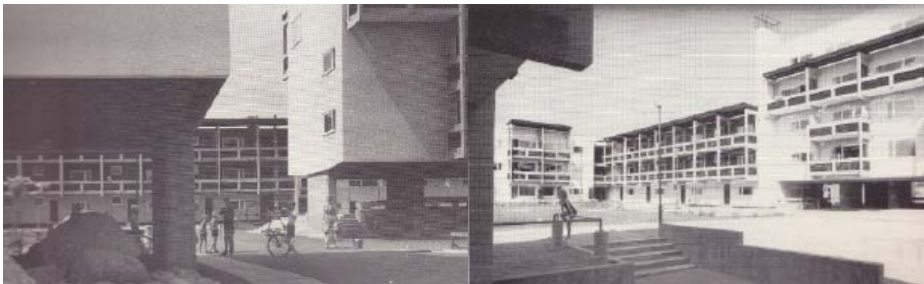
FUNCTION: 366 apartments



This project is a good representation of the ideas of Team. Through the design, Erskine created a strong urban identity, designing it as a small community within a community, formed within a housing block, several storeys high to the north.

The design idea is to stimulate contact between neighbours and look beyond the grouping that can be defined (around schools, shopping centres, and so on) trying to launch the concept of "gossip groups" between neighbours.

The development is designed as a community supporting the sharing of entire areas.



Erskine creates a lively street life within high building. Open space between the structures functions as a good social and community participation area.



Keep the galleries not in great height and monotonous as it would reduce the feelings of uncertainty and contribute to making housing feel inhuman.

According to the design, it completely fulfills the ideas. The whole building structure contributes to the social life and community, creating a strong urban identity.



Site Plan

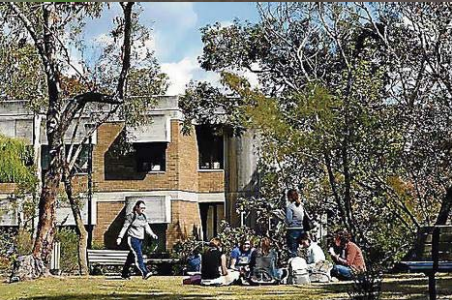
CASE STUDY SYDNEY

UTS Ku-ring-gai Campus,

David Don Turner.

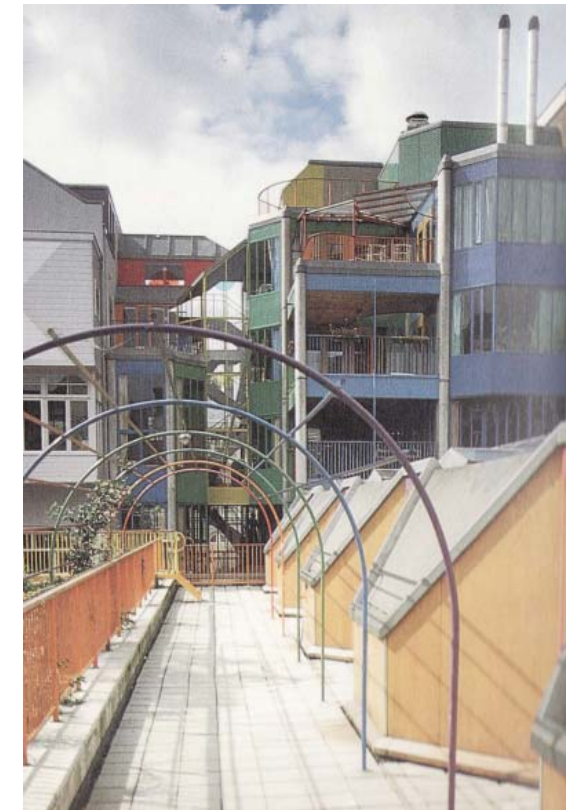
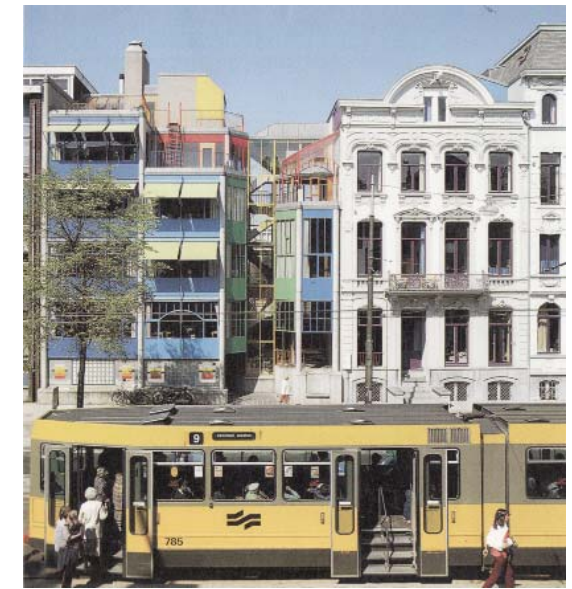
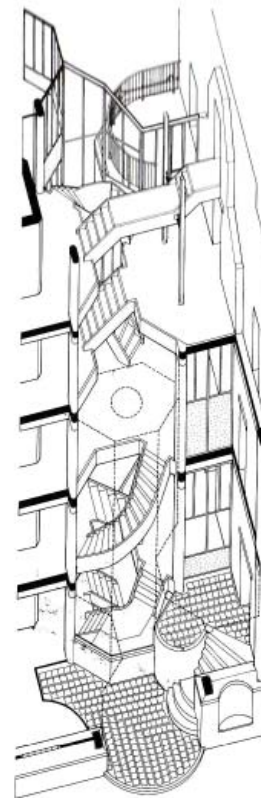
LOCATION: Ku-ring-gai, NSW, 1978

FUNCTION: UTS campus



"In addition to the contribution and accolades for the School of Architecture academic staff, the UTS Ku-ring-gai Campus was awarded the 25 year award. Designed by the NSW Government Architect, J. W. Thomson, with Project Architect David Donald Turner and Landscape Architect Bruce Mackenzie, this complex won the prestigious Sulman Award for Architecture in 1978, and is on the RAIAs Register of 20th Century Buildings of Significance."

"The citation noted that 'Ku-ring-gai College has a robust presence, representing a turning point in architectural design, where honest materials are juxtaposed against the natural landscape of Sydney bushland... Occupying a ridgetop on Sydney's middle North Shore, the college houses various teaching departments, auditorium, library, lecture spaces and administration elements, all set out along a broad internal circulation spine or "street". The building's component parts have been dispersed to form platforms in sympathy with the topography; thus, the building is adjusted to its site. This nature/culture juxtaposition of rugged building forms and the inherently raw bushland site make for high drama when viewed from a distance... This building was created in a climate of transition between the Sydney School and the new brutalism coming from the UK. It unashamedly has elements of both styles, but has endured a quarter of a century. A citadel on a sandstone plateau, surrounded by majestic trees, Ku-ring-gai Campus is now part of our history. Whilst it has never had a high public profile, it is a building of great significance for Sydney.'" (<http://datasearch.uts.edu.au/dab/news-events/news-detail.cfm?itemId=5467>) (<http://www.twentieth.org.au/brutalism.html>)



CASE STUDY

Stonebridge Hillside Hub, Edward Cullinan Architects

LOCATION: London, 2005 - 2009

FUNCTION: mixed use residential



The Stonebridge Hillside Hub is a mixed use building in Stonebridge, north west London. Two 'wings' accommodate a health centre and a retail unit, both topped with mixed tenure residential units and fused together by a central community facility.

The residential section of the Hub provides 25 apartments for shared ownership, with 16 allocated parking spaces and 34 units for sale to the open market, each with its own parking space. The 1-bed, 2-bed and studio flats look out onto a landscaped garden at the rear of the scheme.

The apartments are designed to National Housing Scheme Development Standards, are covered by a 12 year NHBC warranty and are rated EcoHomes 'Very Good'. The residential apartments won the What House Silver Award for Best Starter Home 2009 and the Hub was shortlisted for the Best Housing project in the Building Awards 2009.

The Hillside Hub won the Mail on Sunday British Homes Award for Mixed-use Regeneration Development of the Year 2009.



In contemporary architecture it is very rare to find examples of architecture which overwhelmingly conform with the ideals of structuralism. However, the architecture of Ted Cullinan as well as the mission statement for his firm Edward Cullinan Architects exhibit some very Structuralist intentions.



In the Stonebridge Hillside Hub the community centre is central to the development, as are the landscaped shared gardens behind the building. This development is an excellent example of how the consideration of structuralist intentions can result in a very successful and liveable building. (http://edwardcullinanarchitects.blogspot.com/2009_09_01_archive.html)



Ted Cullinan set up Edward Cullinan Architects in 1965. We practice as a co-operative giving us an unusual flexibility to respond effectively to our client's demands.

We are based in Islington, North London where we work in a single studio to maximise inter-project understanding and to facilitate the easy adjustment of the project teams as their needs ebb and flow.

We have worked with many different clients, producing very different solutions within commercial, cultural, housing, health, primary and secondary education sectors, in the University sector and in Urban Regeneration and Masterplanning.

To each of these projects we bring our common interests:

- # A positive response to the historical and physical context.
- # An understanding of the importance of good public spaces.
- # A belief that consultation and participation by the users forms an essential part of an effective design process.
- # An appropriate degree of flexibility to allow for changing patterns of use and the continually developing needs of technology.
- # A continually developing focus on energy conservation and sustainability.
- # An enjoyment in the construction of the buildings as an integral part of their architecture.
- # A commitment to lean thinking and the Egan agenda in pursuit of better value for the client and the user. (http://www.edwardcullinanarchitects.com/projects/res_stb.html)



CONCLUSION_{our POSITION}

As an architectural movement and a school of thought it is crucial for architects, and architecture students alike, to appreciate structuralism and consider structuralist thought in their architecture.

Upon reflection, a few observations may be made about Structuralism. The first is that among the few examples of Structuralist architecture it appears that there are fewer examples of successful Structuralist residential developments than there are successful examples of schools (for example Hertzberger's schools), multi-purpose centres and universities. I can't explain why this is; however, I would hazard a guess that it may be because these examples of 'Structuralist' work have been executed with little understanding of the complexity of Structuralism. This, I also guess, is the reason why I am so naturally sceptical of Structuralist architecture and socialist intentions in architecture. Furthermore, it is apparent that ideas of the deep structures of architecture and deep structures of social behaviour or the idea of a language of architectural socialism are very rarely included in built examples of architecture. Whilst fundamental to Structuralist theory, a language of architecture is a very difficult concept to develop and a very big risk to take in a built project.

Another observation is that the elements of Structuralism incorporated in contemporary architecture are very subtle. Unlike structuralist architecture produced by (for example) members of Team 10 who considered Structuralism in their design in a very holistic sense, recent architects like Ted Cullinan who have developed Structuralist ideas in their architecture do so in a very eclectic way often combining it with ideas of environmentalism, affordability and urban development.

"The UTS Kuring-gai campus site exists as testimony to the visionary work of Architect, David Don Turner and Landscape Architect, Bruce Mackenzie. Turner and Mackenzie's approach was to harmoniously blend the built structures and the natural environment.

The vision of Turner and Mackenzie produced a unique Australian campus that was visually reminiscent of the hilltop town in a bushland setting, combining elements of both European 'Brutalist' architecture with the Sydney School of the late 1960's."

The UTS Ku-ring-gai campus has been very successful in changing the Australian expectations of the design of an educational facility. Also, the relationship between the structure and the surrounding bush land, in the retention of the natural landscape, was almost without precedent. The new dynamic between the structure (which utilises very simple and unadorned materials; exposed concrete, bricks and glass) and the bush created unprecedented social spaces. Whilst this building is more brutalist in style this new relationship between the building and the environment emphasised the gathering spaces both in the interior (top right photo) and on the exterior between the bare "honest" concrete and the natural enclosure of the bushland. The Ku-ring-gai campus also shares a very similar aesthetic to many structuralist buildings.

(http://www.planning.nsw.gov.au/asp/pdf/06_0130_uts_sss_cp_Site_Analysis_and_Urban_Design_part2.pdf)



CASE STUDY SYDNEY

Sirius Apartments,

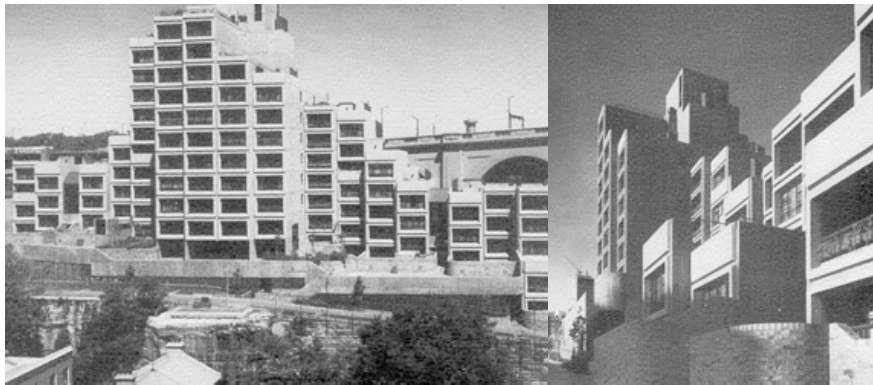
LOCATION: the Rocks, Sydney, 1960 (approx.)

FUNCTION: residential apartment for Housing Commission of NSW

"This project required detailed technical consideration to economic use of materials and methods of construction as the client required it to form a prototype for future middle-income residential developments."

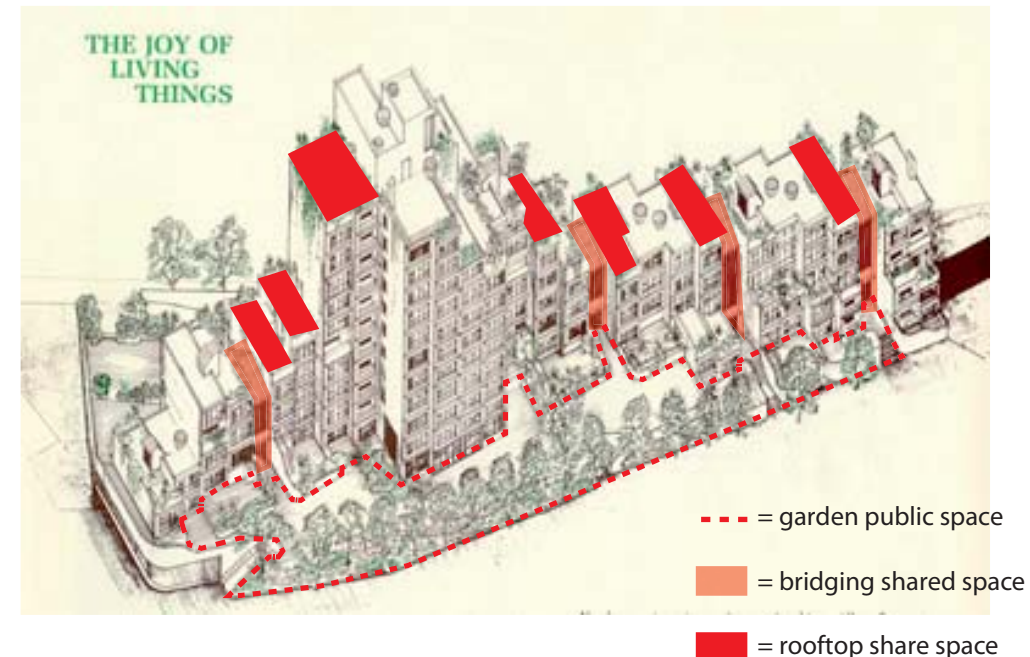
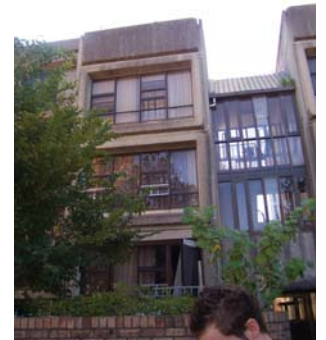
The development contains 79 units providing a variety of accommodation including social housing, pensioner units and 1, 2, 3 & 4 bedroom family units. On site parking is provided along with community rooms, sitting rooms, landscaped terraces and play areas."

With their exposed concrete surfaces, the Sirius Apartments are a good example of brutalist architecture. Reminiscent of a child's stacked toy blocks, the top few floors of the building can be seen driving along the southern approach to the Sydney Harbour Bridge. (At the left, in the background of this photograph, the very tips of the sails of the Sydney Opera House are also visible.)
(<http://www.alexanderandlloyd.com.au/>)



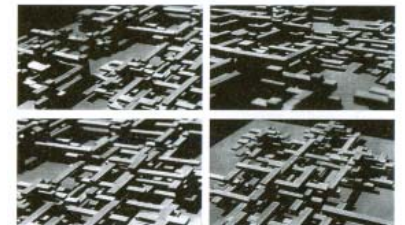
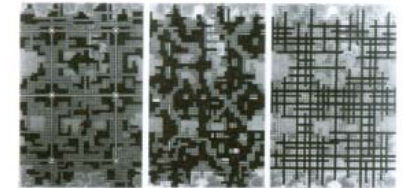
The Sirius Apartments, situated on the east side of the Harbour Bridge, has in SMH surveys repeatedly been voted one of the ugliest buildings in Sydney by the Australian public. However, behind its brutalist facade lie much more human intentions. Several elements of the building point to Structuralist ideologies in the building. These include

- the modular construction of the apartments which give the resident a greater sense of separation and therefore a greater sense of ownership (a valuable characteristic in social housing developments).
- the open space of corridor/entry to the building which creates a visual link between both sides of the building and emphasises the shared space within the building (similar to the Hubertus House by van Eyck)
- a large amount of shared garden space at the front of the building
- several shared rooftop spaces encouraging the residents to mingle



CONCLUSION_{our POSITION}

The great concern in regard to the neglect of Structuralism is that architects will neglect the social element of architecture. Too frequently form dominates the design of architecture and less consideration is given to the people who actually inhabit the building. I believe that the architecture of Ted Cullinan represents the future of structuralist thought in architecture. Rather than creating Structuralist architecture as examples of the theory, structuralist thought should be included in all architectural design, and especially in the design of affordable housing.



Atelier de Montrouge, diagrams and models of study project Le Vaudreuil, Paris (1968).



Atelier de Montrouge, model of study project Le Vaudreuil, Paris (1968).

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